

Annual Report: Natural Resource Program Center Funded Projects

Due 31 October

Fiscal Year Project First Funded: 2013

Project Name: Determining Critical Wintering Sites & Migration Routes for Juvenile Red Knots

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Project Location: Cape Cod, Massachusetts (Monomoy Refuge and nearby beaches in Chatham, Orleans, and Eastham)

Project Goal: The goal of this project is to identify the migration stopover sites and wintering habitat of juvenile Red Knots (using geolocators) migrating through Monomoy National Wildlife Refuge and surrounding beaches in the fall. This work has been conducted under successive Multi-year Cooperative Agreements with The Conserve Wildlife Foundation of New Jersey with the following goals:

- 1) Work with available companies to purchase geocator tracking devices that are suitable for shorebirds (appropriate size) and saltwater environments;
- 2) Attach geolocators to bands so they are field ready;
- 3) Assist in capture and processing of juvenile red knots beginning in 2012;
- 4) Assist in recapture of birds carrying geolocators beginning in 2013 (juveniles were first captured and outfitted with geolocators under a separate Cooperative Agreement in 2011);
- 5) Conduct post-processing and analysis of data retrieved from geolocators, following targeted trapping efforts in 2013 through 2016, or of any geolocators installed as part of this project that are recovered in 2012-2016 incidental to other projects;
- 6) Write manuscript.

Some of the funding (\$26,000 of the total \$40,000) received from NRPC was combined with other funding to support these project goals through the Cooperative Agreement. An additional \$5,000 was used to support these goals at the Refuge Station (field supplies and boat support). The remaining \$9,000 was used for a contractor to conduct Red Knot resighting surveys and conduct reconnaissance work to support the cannon-netting activities.

Expected Conservation Outcome of the Project: The Red Knot is a candidate for federal protection under the Endangered Species Act. These birds undertake one of the longest migrations known, traveling from their furthest wintering ground at the tip of South America to their Arctic breeding grounds and back again each year, an estimated 16,000 miles round trip. Survival of juveniles during their first winter could be a key factor in population dynamics and recovery, but currently there is little information on juvenile migration routes and no information on where they spend their first winter. Building on the ground breaking work with adults outfitted with geolocators, there is a good opportunity *to identify juvenile migration pathways and wintering grounds* using this same methodology. Southeastern Massachusetts and Cape Cod in particular, is likely one of the most important sites for Red Knots during southward migration and hosts a large percentage of juveniles. In 2011, we began the effort to identify juvenile migration and wintering areas by placing geolocators on 56 juveniles. We continued this effort in 2012, but a poor breeding season meant there were very few juveniles available to trap, and we were only able to catch 11 additional juveniles. In 2013, we hoped to catch at least an additional 50 juveniles, and also start recapturing birds that were outfitted with geolocators as juveniles in 2011, so we can begin downloading location information. This effort is a collaborative venture of Monomoy National Wildlife Refuge, Delaware Bay Estuary Project, New Jersey Field Office, The Conserve Wildlife Foundation of New Jersey, and Manomet Center for Conservation Sciences. Increased involvement by National Wildlife Refuges has been identified in the Red Knot Spotlight Species Action Plan. By partnering with other offices and organizations already conducting Red Knot research, we have an opportunity to significantly contribute to conservation of this species through directed research in a cost effective manner. We also collectively have multiple opportunities for retrieval of geolocators from these birds as well, either at Monomoy Refuge or beaches along Delaware Bay, outer coast of Virginia (which hosts about one third of the population each spring), South Carolina, and Georgia (during ongoing intense resight / recapture efforts). Working with existing research/monitoring efforts not only reduces costs, but increases the chances of collecting this important information.

Project Measureable Objectives (Year 1): The objective in the Cooperative Agreement for 2013 was to catch 50 juvenile Red Knots to outfit with geolocators, and to start recapturing birds that were outfitted with geolocators as juveniles in 2011, so we can begin discovering migration and wintering locations.

Project Measureable Objectives (Long-term): The long term objectives of the Cooperative Agreement are stated above, but the FY 2013 NRPC funding was only meant to support the work for 1 year.

Assessment of Short-term Performance (Year 1): In 2013, we purchased 60 new geolocators through the Cooperative Agreement. Although the 2013 breeding season appeared to be better than 2012, juvenile red knots in southeastern MA were using new roosting and foraging sites so trapping was extremely challenging. We did make two catches of birds, however, and put geolocators on a total of 35 red knots (34 juveniles) and 16 black-bellied plovers (as part of another study). We did not recapture any birds that had been outfitted with geolocators in 2011. However, 2 birds were recaptured in the spring of 2014, and data were recovered (1 in South Carolina and 1 in New Jersey).

- Less than 70% conservation objective achieved
- 70 – 79% conservation objective achieved
- 80 – 89% conservation objective achieved
- 90% or more conservation objective achieved

Assessment of Long-term Performance this year: Not Applicable

- Less than 70% conservation objective achieved
- 70 – 79% conservation objective achieved
- 80 – 89% conservation objective achieved
- 90% or more conservation objective achieved

In the first year of the project, 2011, we captured, banded and attached geolocators to 72 juvenile Red Knots. This project funded the purchase of 60 geolocators, and the remaining ones were purchased with other project funds. In preparation for this project in 2012, we purchased and mounted 50 geolocators. In 2012 a poor breeding season brought many fewer juveniles to Monomoy Refuge and other southbound stopovers and southern wintering areas. Eleven juvenile knots were captured, banded and tagged with geolocators in 2012, bringing the two year total to 83 (17 less than the intended project goal of 100 juveniles). The remaining 39 geolocators (of the original 50 for 2012) that were already running and could not be turned off were used on Red Knots in Brazil as part of a project funded by the National Institute of Health (that is focused on ruddy turnstones). Five of the 39 red knots tagged in Brazil were juveniles. In 2013, we purchased 60 new geolocators through the Cooperative Agreement and caught 34 juvenile Red Knots, bringing our 3 year total to 117 juvenile birds (exceeding our goal of 100). Beginning in 2014, our emphasis is now on recapturing birds.